

REMARKS

In the last Office Action, the Examiner rejected claims 1–4 and 21–24 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,525,328 (“*Miyoshi*”). The Examiner indicated that claim 25 is allowable and objected to claims 5–20 as dependent upon a rejected base claim, but indicated they would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claim. Applicants appreciate the allowance of claim 25, and the indication of other allowable subject matter. However, because *Miyoshi* fails to anticipate claims 1–4 and 21–24, Applicants respectfully traverse the rejection of these claims.

Amendment

Applicants have amended claims 1, 3, and 21–25 to improve form and remove any possible ambiguity resulting from the internal punctuation of the claims. Applicants have also amended claims 5 and 13, rewriting each in independent form, including all elements of the claims from which each depends. And Applicants have added new claim 26 to further claim subject matter of Applicants’ invention. These amendments are made without respect to any rejection over prior art and should not be considered a disclaimer of any scope of subject matter to which Applicants are entitled either literally or by the Doctrine of Equivalents.

Rejection under § 102(e)

The Examiner rejected claims 1–4 and 21–24 under § 102(e) as anticipated by *Miyoshi*. Because *Miyoshi* fails to anticipate claims 1–4 and 21–24, Applicants respectfully traverse the rejection of these claims.

To properly anticipate Applicants' claimed invention under 35 U.S.C. §102(e), each element of the claim in issue must be found in a single prior art reference, expressly or inherently. Moreover, "[t]he elements must be arranged as required by the claim." MPEP § 2131 (8th ed. Rev. Feb. 2003).

Miyoshi discloses in one embodiment (Figure 4) a cell projection type system. The system includes an electron gun 51, which projects a electron beam through a first aperture angle diaphragm 52. (*Miyoshi*, col. 9, ll. 52–54; Figure 4.) The beam passes through illumination optical system 53, which ideally has a first multi-pole lens, and where the beams do not cross over. (*Id.*, col. 9, ll. 54–57; col. 6, ll. 65–67; col. 6, ll. 51–55; col. 10, ll. 10–12; Figure 4.) The beam continues through electrostatic shaping/deflecting system 4, and to CP aperture 5. (*Id.*, col. 9, ll. 54–61; Figure 4.) After passing through CP aperture 5, the beam continues through second electrostatic shaping/deflecting system 6 crossing over itself, which returns the deflected electron beam to the center of the optical axis, and through second angle diaphragm 7. (*Id.*, col. 9, ll. 65–67; col. 10, ll. 29–36; Figure 4.) The beam proceeds through projection optical system 58, which may comprise a four-stage asymmetric lens system (quartet) using quadropole lenses 8, to substrate 21, and where the beams do not cross over. (*Id.*, col. 10, ll. 1–6 & 58–64; col. 6, ll. 51–55; col. 10, ll. 10–12; col. 13, ll. 6–12; col. 15, ll. 1–4; Figures 4 & 5.)

By contrast, claim 1 recites, *inter alia*:

A charged particle beam exposure system comprising:

...

a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same

demagnification both in X and Y directions when the optical axis extends in Z directions and form an image on the substrate without forming any crossover between said character aperture and the substrate

Miyoshi's disclosure of a beam passing through CP aperture 5, and crossing over itself, while continuing through second electrostatic shaping/deflecting system 6, then proceeding through a projection optical system 58 and eventually reaching substrate 21 is not the same as “a *reducing projecting optical system* which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the optical axis extends in Z directions and form an image on the substrate *without forming any crossover between said character aperture and the substrate*,” as recited in claim 1 (emphasis added). Because *Miyoshi* fails to teach at least this claim element, it cannot anticipate claim 1.

To the extent the Examiner refers to Figure 2 of *Miyoshi*, Applicants note that it is a separate, prior art embodiment, which Applicants submit is not properly combinable with the embodiment in Figure 4. Further, it, like the rest of *Miyoshi*, likewise fails to teach, at least, “a *reducing projecting optical system* which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the optical axis extends in Z directions and form an image on the substrate *without forming any crossover between said character aperture and the substrate*,” as recited in claim 1.

To the extent the Examiner refers to Figure 6 of *Miyoshi*, Applicants note that it is also a separate embodiment, which the Examiner does not allege (nor could it be alleged) includes, at least, “a second deflector which deflects the charged particle

beams passing through said character aperture by means of an electrostatic field to scan the substrate with the charged particle beams,” as recited in claim 1. Without agreeing with the Examiner’s characterization of *Miyoshi*, the Examiner alleged that element 6 of Figure 4 (identified in *Miyoshi* as a “second electrostatic shaping/deflecting system”) corresponds a “second deflector,” as recited in claim 1. As disclosed in *Miyoshi*, when the beam passes through a second electrostatic shaping/deflecting system 6, it crosses over itself. (*Id.*, col. 9, ll. 65–67; col. 10, ll. 29–36; Figure 4.)

Applicants respectfully submit claim 1 is allowable over *Miyoshi*, as are claims 2–4 at least because of their dependence from allowable claim 1. Applicants kindly request withdrawal of the rejection of claims 1–4.

Claim 21 recites, *inter alia*:

A charged particle beam exposure system comprising:

. . .

a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture form an image on the substrate without forming any crossover between said character aperture and the substrate

For the reasons given above with respect to claim 1, *Miyoshi* also fails to teach, at least, “a *reducing projecting optical system* which forms a multi-pole lens field so that the charged particle beams passing through said character aperture form an image on the substrate *without forming any crossover between said character aperture and the substrate*,” as recited in claim 21. Because *Miyoshi* fails to disclose each element of claim 21, Applicants submit that claim 21 is allowable as is claim 22 at least because of its dependence from allowable claim 21. Applicants request withdrawal of the rejection of claims 21 and 22.

Claim 23 recites, *inter alia*:

A charged particle beam exposure system comprising:

. . .

a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture form an image on the substrate without forming any crossover between said character aperture and the substrate

For the reasons given above with respect to claim 1, *Miyoshi* also fails to disclose, at least, “a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture form an image on the substrate *without forming any crossover between said character aperture and the substrate*,” as recited in claim 23. Because *Miyoshi* fails to disclose each element of claim 23, Applicants submit that claim 23 is allowable and request withdrawal of its rejection.

Claim 24 recites, *inter alia*:

A charged particle beam exposure system comprising:

. . .

a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the optical axis extends in Z directions and form an image on the substrate without forming any crossover between said character aperture and the substrate

For the reasons given above with respect to claim 1, *Miyoshi* also fails to disclose, at least, “a *reducing projecting optical system* which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the

optical axis extends in Z directions and form an image on the substrate *without forming any crossover between said character aperture and the substrate*,” as recited in claim 24. Because *Miyoshi* fails to disclose each element of claim 24, Applicants submit that claim 24 is allowable and request withdrawal of its rejection.

Objection to claims 5–20

The Examiner objected to claims 5–20 as being dependent upon a rejected base claim. Applicants have rewritten claims 5 and 13 in independent form, incorporating all elements from the claims from which each depends. Claims 6–12 and 14–20 depend, respectively, from claims 5 and 13. Applicants respectfully request that the Examiner withdraw the objection to claims 5–20.

Allowance of claim 25

Applicants appreciate the Examiner’s allowance of claim 25. Applicants note that the amendments to claim 25 do not affect its scope or allowable status and simply improve form.

New claim 26

Applicants submit new claim 26 is allowable as written. For example, at least its recitation of, “a reducing projecting optical system including a plurality of multi-pole lens fields so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the optical axis extends in Z directions and form an image on the substrate, said plurality of multi-pole lens fields having a first multi-pole lens field closest to the character aperture, said first multi-pole lens field forming a divergent electrostatic field in one direction of the X and Y directions and forming a convergent electrostatic field in the other direction of

the X and Y directions; and a second deflector which deflects the charged particle beams passing through said character aperture by means of an electrostatic field to scan the substrate with the charged particle beams," is nowhere taught in the cited references.

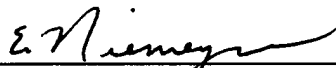
In view of the foregoing, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Elizabeth A. Niemeyer
Reg. No. 52,070